

# Chemical Disarmament Is the Real Step Toward World Peace

## Small Armies And Navies Are A Minor Issue

C. H. Herty, World-Famous Expert, Says Modern War Is Based on Chemistry and Warns Conference to Act

By Edward Marshall

SHALL the United States be economically independent? Shall the United States be chemically defended? Shall the United States do what it can to utilize its scientific knowledge for the benefit of the human race?

In view of the disarmament conference presently to be held in Washington, these questions at this time are especially momentous. I put them to the one man in America best qualified to answer them, Charles H. Herty, who is world famous as a chemical expert, is a member of the chemistry division of the National Research Council and is chairman of the American Chemical Society's committee advisory to the United States Chemical Warfare Service, and is the editor of Industrial and Engineering Chemistry, published by the American Chemical Society, and is otherwise distinguished.

His statement at this particular time will be read with a peculiar interest because, among other things, they show that President Harding's disarmament conference, at which the nations of the world will be represented, must consider many things besides army, navy and Red Cross. It perforce must consider chemical industry in almost all its manifold phases, if it really is to accomplish anything worth while in the direction of disarmament.

"The disarmament conference," said Dr. Herty, "if it follows the conventional lines of thought, providing against and for such matters as previously have been considered by thinkers along the lines involved, will be of epoch-making importance.

"The public must be interested in it; especially the public should remember that all the armies and navies in the world might be disbanded and still leave all the nations of the world fully equipped for a warfare unprecedentedly destructive of human life. Times have changed since the peace conference at the Hague.

"In view of rapid progress in lines of chemical research I do not hesitate to say that soon they will have changed from the days of the peace conference at Paris.

### Real Object of Conference Has Not Been Set Definitely

"What will be determined on as the chief object of the conference? Will it be to save the nations from the great burdens of taxation for military purposes? Or will it be to bring about actual disarmament for the insurance of peace? I have watched all utterances and have seen nothing from official sources at Washington or elsewhere which bears upon this vital detail. A conference for the first purpose would be practically farcical. A conference for the second purpose would call especially for chemical disarmament. It would be epoch-making and would develop lines of argument and revelations which would amaze the layman.

"Chemical disarmament would be actual disarmament. Anything else which did not include it, no matter with what great solemnity it might be promulgated, would be wholly idle.

"Chemical disarmament is by far the most important armament, to-day, both for offense and for defense. Eliminate chemistry from to-day's warfare, and little would be left.

"Modern war, unlike that of old, commands all industry. Modern industry is dependent upon chemistry. Chemistry in warfare means not only gas and high explosives, but vital details of communications, investigations looking to the improvement and production of metals, and, indeed, is of paramount importance in every step of war making, as it is to-day of paramount importance in every detail of civilized man's peaceful life.

"If the conference is to talk of chemical disarmament, the first chapters of the talk must needs be of chemical armament. And here arises an extraordinary point. The nation



Photo by Paul Thompson

## When the Chemists Took a Hand in the Great War



THE helmeted figure is a French soldier equipped to sustain a gas attack. The large photograph shows troops advancing through a cloud of fumes. The third picture was taken just after the explosion of an asphyxiating gas bomb.

which is not chemically armed cannot be equipped for modern industry, therefore prosperity in these days implies possession of facilities which quickly can be metamorphosed into facilities for chemical warfare. This leads to an extraordinary conclusion perhaps not reassuring to the advocates of peace. To render a modern nation incapable of waging war would be to render it incapable of conducting modern industry. Therefore, disarmament, in the old sense of destruction of navies and disbandment of armies, to-day would not be, in actuality, disarmament at all.

### Chemical Armament Means Thorough Industrial Plants

"What does chemical armament mean? It means a nation's possession not of vast government plants devoted primarily and exclusively to the production of chemical munitions of war, but a nation's possession of a great chemical industry, complete in all its branches (commercially complete), efficiently organized for team work (as is commercially profitable in these days), with highly trained professionals at its head and in its technical departments, and with available an abundance of raw material on which it can draw for the foundation of the products which it is to manufacture.

"Such to-day is the equipment of Germany, barring, perhaps, possession of a few raw materials not by any means wholly inaccessible to her and which, conceivably, she may be storing at this minute in spite of all the efforts of the Allies at the peace conference to render her incapable of conducting future warfare.

"It is well for the lay mind fully to grasp this fact. Germany was not disarmed by the peace treaty, nor, indeed, was the problem of disarming Germany fully grasped by the Allies in attendance at the conference.

"As modern war presented problems which, at the beginning of the struggle, were not understood by the combatants, so modern peace presented problems which were not understood by the delegates to Versailles.

"Germany, we will assume, lacks certain raw materials. Well, suppose that in the next few years the raw material of Russia shall become available to Germany, then Germany's chemical equipment for warfare will be absolutely complete. The same would be true of Japan, ill-equipped as her small territory, with slight natural resources, may seem to render her at present, should she become the third member of a group of which the first members were Germany and Russia. I hope and trust that the American people will wait for official and complete confirmation of any tales of serious disintegration which may come out of Russia.

"Perhaps there may be evidence that the suggested group is not beyond the possibilities. Geographically the three nations are ideally situated for

such a combination, with Russian resources lying most conveniently between Japan and Germany. In 1920, without attracting American attention beyond the realms of the chemical industry, Hajime Hoshi, president of the Hoshi Pharmaceutical Company of Tokyo, won the vociferous applause not alone of Germany, but of his own countrymen (before me as I talk I have records of that general Japanese approval in the form of printed commendation), by the presentation of two million marks to Germany for the advancement of her chemical research. This sum was transferred to the German Ambassador at Tokyo, Dr. Solf, with the hope that it might advance German chemical and pharmaceutical research and in some measure repay the debt owed by Japan to German scientists for the advancements which they had made available in chemical research. This gift of a Japanese civilian to Germany was formally (and very heartily) approved not only by the present Japanese Minister of Foreign Affairs, but by the former Foreign Minister, Baron Goto. It was formally accepted by the German government October 5, 1920.

### Chemical Industry Means War Potentiality

"The existence of a great chemical industry means the existence of great potentialities of gas warfare. The existence of an industry equipped to manufacture mighty guns is far less important. Our own General Mitchell has demonstrated, first by argument and then by the tests at Hampton Roads, the effectiveness of explosive bombs independent of guns, great or small, if, indeed, after the air raids of the German Zeppelins and airplanes during the war, such a demonstration could be held as necessary.

"In the tests at Hampton Roads one opportunity which had been called to the attention of the government was neglected. The ships might have been filled with animal life, as rats, etc., and before the attacks designed for the destruction of the vessels, experiments might have been made, the results of which would have been indicative of the possibility of destroying life on warships by toxic or poison gas bombs without actual destruction of the warships.

"It is my belief that chemical warfare might find this easier than the actual destruction of a ship. General Mitchell is right in his contention that airplanes in the next war will have enormous power of dealing death to both the military and civilian populations of an enemy through the distribution of poison gases dropped from airplanes in bombs or otherwise—possibilities inevitably associated with highly developed chemical productive equipment. Elimination of an enemy's battleships, forts and guns is no longer

### Chemical Disarmament Was Prevented by America

"Now I shall say something which perhaps, will startle. Sections 193 and 199 of the peace treaty gave ample power for accomplishing the chemical disarmament of Germany through destruction of her surplus dye plants. All are agreed that the first step in disarmament is the stripping of war-making power from that nation which brought about the late war and which to-day shows no sign of contrition, though defeated. When in Paris in 1919, as a member of the conference on reparations dyes, I asked why this had not been done. The answer came: Europe wished it, but American influence was against it—and prevailed. This statement has been confirmed by others made to me personally by Americans present during and concerned with the formulation of the peace treaty. The basis of this unfortunate American attitude was insistence that these dye plants make products useful in peace and, therefore, should be preserved. Exactly the same view prevailed concerning German plants for the fixation of atmospheric nitrogen.

### But the rest of the world was determined to be independent of Germany in dye manufacture and nitrogen fixation, a privilege which would be easy of achievement by America, as has been proven by the accomplish-

ment in other lines of such industrial leaders as Edison, Ford and Schwab. And a great over-productive world capacity in dyestuffs capacity exists to-day. The surplus German plants as now maintained are a probable incitant of future military war and a sure incitant of future commercial war in which Germany has all advantage of experience, of geographical distribution and of governmental sanction of unification—an economic policy abhorrent to American ideals of healthy industrial conditions. Unneeded in peace, these surplus German plants represent inconceivable potentialities of chemical war making.

"If, at the world conference on disarmament at Washington this matter is not taken up and handled, and, as a doughboy would be wise enough to say, 'handled right,' then the Administration now in power will repeat an inconceivable error of its predecessor. I expect it to be taken up and 'handled right.'

"There is another chance that at the disarmament conference in Washington our government may force action on the whole vast problem of chemical warfare. Both are things that the United States has failed to study and decide upon, but things upon which every American citizen should be insistent, so that America's representatives at the conference may make no tragic errors. It is high time, now that the conference approaches, that we should take thought of them.

### Russia Has Unlimited Chemical Resources

They are being thought of elsewhere. On October 26, 1919, was issued an special edition of the Berlin Vossische Zeitung for the purpose of the 'restoration and development of trade relations between Germany and Bolshevik Russia.' This special edition was particularly announced as carrying 'political as well as commercial articles.' It was issued within two years of the signing of the peace treaty. No time was lost. And, famine or no famine, Russia has unlimited natural chemical resources.

"These natural resources are quite sufficient to supply all the German chemical plants, through American influence left intact by the treaty, with all that they might need in case of a new war by means of which Germany and Russia, with possibly Asiatic allies, might endeavor to reconquer the losses of the recent disastrous struggle.

"In the various chemical plants, especially in the dye plants, which thus by the treaty through American influence were left intact, official records show that Germany manufactured all her gas and the greater portion of her explosives during the recent war. The treaty provision that she must not use them now for the manufacture of gas Germany can laugh at, for, naturally, no treaty would be observed after war had been

begun and with their possession, adaptation of the plants, material and trained personnel to gas manufacture would require a few hours only. Plants, material and trained personnel are requisites of such peace enterprises as, under the treaty (and, as I have said, through American influence), she is at perfect liberty industriously to pursue."

Dr. Herty paused.

"What was the reason for America's objection to treaty requirements of chemical disarmament on the part of Germany?" I asked.

"I don't know," he answered. "The chief nations of the Allies have done what they could to protect themselves against the consequences of the American error. In other words, they have provided against the discouragement by German competition of similar plants within their boundaries. Great Britain, France and Italy have restricted the importation of dyes and other coal-tar chemicals in order to encourage the development of their own similar industries in the interests of future defense.

"Under the influence of the complete blockade of German coal-tar products, while the ports of Germany were closed by the British navy, our own dye works developed until this country is in a fair way to chemical independence of the Germans.

### What Are We Doing? Less Than Nothing

"But what are we doing to insure that this growth of chemical independence shall proceed until it is complete?

"Only a few weeks ago a most peculiar combination of low tariff Democrats and high tariff Republicans, led by a Congressman from Wisconsin who favored the McLemore resolution forbidding American citizens to travel on ships carrying munitions, and who voted against the draft bill and against war with Germany, defeated that portion of a proposed bill which would have made us independent and would have stopped importation from abroad of coal tar chemicals now made in this country in adequate quantity of good quality and at reasonable prices.

"Unless the Senate changes this House bill as sent to it our country presently will stand again, so far as the most important activities necessary to modern war preparations are concerned, exactly as she stood before the great war started with us. We shall find ourselves in the position of a fighter with hands tied behind his back.

"This would deliver two mortal blows to the cause of the world's peace. First, it would preserve intact Germany's chemical industry, and, second, it would be responsible for such a flood of chemical imports into the United States as would drive out of the chemical business all those Americans who have given their capital and energy to building up a home chemical industry which, if developed, would make us secure in time of war.

"If among the readers of this interview there be those who hold that in time of peace the discussion of war problems is improper, militaristic and therefore destructive of international peace prospects, I call their attention to two recent utterances of very eminent men as reported in the newspapers.

"At Williamstown, Mass., Lord Bryce, most eminent of Englishmen, in a lecture showed how the Treaty of Versailles sowed the seeds of war, and on the same day, elsewhere, General Pershing, addressing citizens at the Camp Meade military training camp, declared:

"We must not drift back into our pre-war attitude of unpreparedness," which was a statement to be regarded supplementary to one made in a letter to Congressman Longworth July 15, 1921, in which he said:

"With regard to the protection of the dye industries of the United States it can be stated that coal tar products, of which dyes are the most important at present in peace, are the base of practically all our high explosives and most of our war gases. Our shortage of chemical plants in general, and of dye plants in particular, prior to the World War made it difficult for us to obtain a supply of high explosives and gases until the war had been on for several months. The importance of the chemical industry, from a military standpoint, should be readily seen."

"In the light of such statements it would seem that he who minimizes the importance of preserving for this

nation the effectiveness of its dye industry takes upon himself a grave responsibility. If there be those who doubt the magnitude of the capacity of the German dye works in terms of high explosives and war gases they may note certain facts. The Germans themselves at the time of visits by Allied officers after the armistice admitted a capacity for the then existing dye plants, which in terms of shell manufacture would mean in one week three and sixty-four one hundredths times more explosives and one and four-one-hundredths times more gas than would fill the entire shell stocks allowed to Germany by the treaty for a year. Startling? Yes. If both high explosive and gas shells were to be filled in the proportion which held during the last days of the war the entire amount allowed by treaty to Germany for a year's production might be supplied by her existing capacity without expansion in one day and six-tenths.

"So it is obvious that at the disarmament conference at Washington the question, of chemical disarmament should be taken very seriously into consideration."

"There are men in the American government service fully qualified to give efficient and confidential advice to our representatives and statesmen, and these gentlemen should get this whole matter clearly and firmly fixed in their minds from sources fully at their command. Indifference of the American public to a situation of this kind must be broken down in some way. I am no alarmist, but the situation really is serious.

### United States Must Have Self-Sustaining Dye Industry

"And whatever may be the outcome of the disarmament conference, this country must possess a completely self-sustaining dye industry. The most powerful factor in influencing Germany to give up her fight and sign the armistice was her clear knowledge of the tremendous preparations which had been made in the United States to pour out over the German armies in the spring of 1919 such a deluge of poison gas, particularly mustard gas, as would have decided the war utterly regardless of our man-power. More than a year was consumed in erecting the plant at Edgewood Arsenal and in supplementing this program so largely by the mustard gas plants erected at our newly located dye plants in Buffalo, Hastings-on-Hudson and Midland, Michigan. Our delay in getting this material ready, due to the fact that we had no great organic chemical industry, cost thousands of American and Allied lives.

"Before the war we had made no chemical preparations, and immediately after the armistice we began preparations for our old time unpreparedness. America's operations, under way on an enormous scale, instantly were stopped, instead of being forthwith converted into industrial facilities, ready, like those of the Germans, for reconversion at any special time. Provision for the quick creation of similar facilities and the maintenance of this provision in continual readiness might easily prevent another war.

"Yet in the game of politics as it is played at Washington, the danger is apparent that this whole matter may be sacrificed. That would be a calamity the magnitude of which the nation

## Germany's Dye Plants Biggest War Menace

Can Fill Year's Quota of Shells in One Week, Says Scientist; Points to Danger of Russian Alliance

at this moment is not mentally prepared to appreciate.

"The question is too big and vital to be left to partisan consideration. It is one on which all patriots can and should unite as efficiently as all did on similarly vital questions during the recent war. It is not a sectional matter, for it has to do with the protection of every man, woman and child in the whole country. Progressive men upon both sides in Congress, in the Army and Navy, in the War and the Navy Departments, in the public press and everywhere throughout the country, should shake off every shackle which binds thought and consider this important factor in national defense.

### Progressive Thought Should Not Be Ridiculed

"We must not ridicule progressive thought. There were many who made sport of General Mitchell's claims concerning the effectiveness of airplanes against battleships. He proved every one of them at the recent tests at Hampton Roads, regardless of conclusions of ultra-conservative government boards. The material used by the airplanes was that explosive which, in the event of war, could be produced in quantity in such peace-time industrial works as I have spoken of. It takes but slight imagination to foresee its power if once combined, as easily may be done, with the chief munition of the Great War's latter days—gas; producible in the same plants.

"It was not the instinct of humanity which prevented Germany, during the war's latter days, from sending airplanes to drop gas bombs upon defenseless cities. It was her knowledge of the equilibrium of the air forces and her fear that if she started it, similar offensives might be taken by the Allies against Rhine cities.

"There is grave danger, at the present moment, that America's coal-tar products industries are to be imperiled by Congressional action, so that an influx of German goods will make them unprofitable and thus stop their development. This done, a weapon will be placed, financed by our purchases of foreign dyes, in the hands of aliens and potential enemies, which they could use almost instantly against us should hostilities begin.

### Other Nations May Play A Ghastly Joke on Us

"If we go to sleep upon this proposition other nations coming to the disarmament conference may use it for the perpetration of a ghastly joke on us. Doubtless they will be willing to agree to a reduction of their navies, and so on, for that will aid their budgets by decreasing their taxation. But their recent legislation shows their knowledge of the vast importance of the preservation of their chemical industries. Methods of warfare have changed. They willingly discard that which they have reason to regard as more or less obsolete, for already they have safeguarded by restrictive legislation the production of that which they know to be essential in modern warfare. This we neglect—while they smile in their sleeves. Unless we wake we shall stand exposed in every way.

"In a war sense Europe is no longer at a distance from us. Chemical warfare against us might be projected from Europe within twenty-four hours and from Japan in an amazingly short space of time. Airships have narrowed oceans till they are not obstacles. One dirigible, in one day's trip from cross-Atlantic could bring enough of chemical offense to put New York out of business in a night.

"Chemical warfare has come to stay. The League of Nations was to forbid such methods. But quickly it was realized that no forbidding by a League of Nations could prevent warring states from war utilization of the easy products of establishments essential in peace days and easily and instantaneously convertible if war came. No effort at such prohibition, in fact, was made by the league experts, who know that it must fail if made.

"The next few months can be made to tell a wonderful story in the evolution of humanity. We all long for continued peace. For its accomplishment, however, our public men in Congress and in the conference must think true on the question of chemical disarmament.

"In it dollars or lives we are trying to save."

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## French Wallingford Amasses Fortune of 40,000,000 Francs

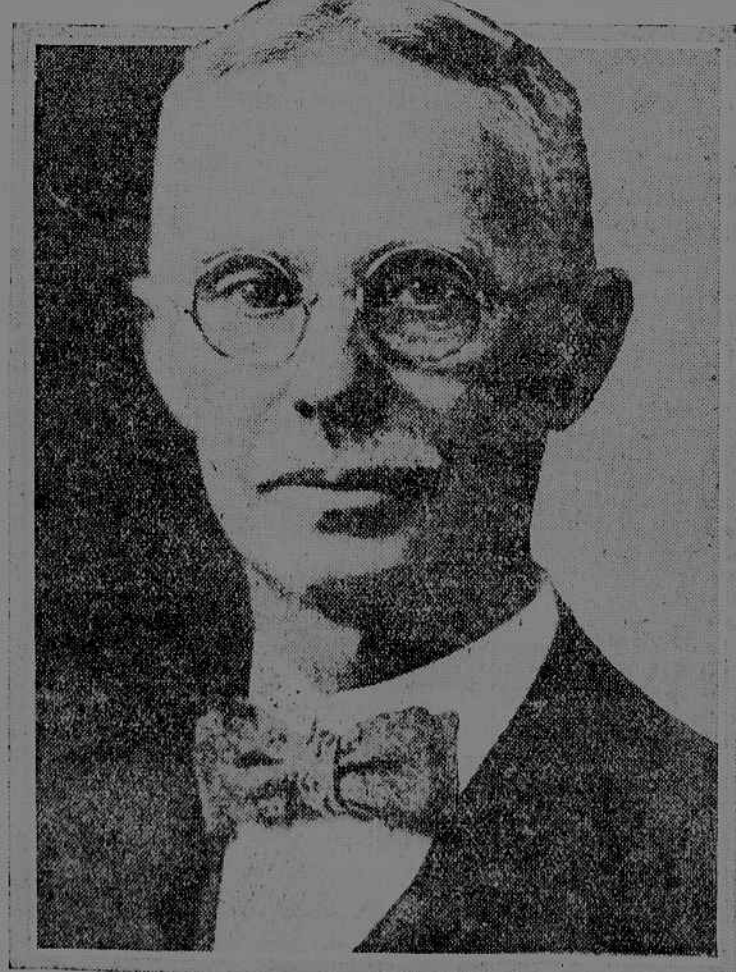
Get-Rich-Quick Banker in Jail Six Times and Goes Bankrupt for 21,000,000 Francs; Is Free Again

PARIS, August 12. —Monsieur Marie Renaud, a miser who bewitched the customers, after a couple of years the firm was dissolved and Renaud was arrested, tried and convicted, but on appeal was acquitted. He then removed to Brussels and founded the "Credit International," which promised its shareholders 500 per cent interest and which went amash in 1904. He was arrested, but again got clear and then went to London. He was again brought before a tribunal in Paris as a bankrupt with 21,000,000 francs liabilities. Again he got free by means known only to himself.

His last—or latest—enterprise was the foundation of a "National Bank" in 1916, calling himself Rockland, alias Count Rouquellan. In the course of his career he has been brought to trial eight times, has been imprisoned six times and has "arrested," "conveyed" or otherwise acquired about 40,000,000 francs. Withal he to-day appears like a well preserved man of fifty, elegant in attire and manner, and everybody in Paris expects that he is about to start his ninth "bank."

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Dr. Charles H. Herty

## Figures on Coal of Silesia Disprove Claims by Germany

Exports of Fuel by Teutons Increased 500 P. C. Up to 1913 as Result of Independent Supply; Poland Gets Half Its Needs

PARIS, August 1. —GERMANY'S claim that the loss of coal mines found in the plebiscite area of Upper Silesia will seriously handicap the Reich's industrial future is minimized by figures and statistics furnished in Excelsior, which Paris newspaper says:

"Figures on the importance of coal production in Upper Silesia are those of 1913, no serious statistics having been established since that date. The coal production of Upper Silesia in 1913 was 43,170,000 tons, a deduction made of the colliery output of Hultschin, attributed to Tchecho-Slovakia (850,000 tons) and of the coal consumption of the mines. Of the greater figure, Upper Silesia consumed 13,000,000 tons. The remainder was exported outside the province.

"The territories that to-day constitute Poland received 7,850,000 tons of Upper Silesian coal and coke—more than 40 per cent of the total needs of Poland (18,500,000 tons). Germany, who declares that Upper Silesia is now indispensable, utilized but 12,500,000 tons of Upper Silesian coal, otherwise less than 9 per cent of Germany's total needs (140,000,000 tons).

"These figures show that Upper Silesian coal plays quite a considerable rôle in Polish industry, while it occupies an inferior place in the coal budget of Germany.